

# **Scientific knowledges transfer**

## **1 semester Syllabus**

### **Part 1: Course Information**

#### **Instructor Information**

**Instructor:** Dr. Sergei N. Polbitsyn  
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#### **Course Description**

Knowledge transfer has become a strategic issue: as a source of funding for university research and (rightly or wrongly) as a policy tool for economic development. Universities vary enormously in the extent to which they promote and succeed in commercializing academic research. The identification of clear-cut models of governance for university-industry interactions and knowledge transfer processes is not straightforward. The purpose of this article is to critically discuss university knowledge transfer models and review the recent developments in the literature on research collaborations, intellectual property rights and spin-offs, those forms of knowledge transfer that are more formalized and have been institutionalized in recent years.

Learning about the nature and utility of scientific models and engaging in the process of creating and testing models should be a central focus of science education. Key components of knowledge transfer approach include enabling students to create computer models that express their own theories of force and motion, evaluate their models using criteria such as accuracy and plausibility, and engage in discussions about models and the process of modeling. Finally, correlational results, including significant correlations of pretest modeling and inquiry scores with posttest physics scores, suggests that developing knowledge of modeling and inquiry transfers to the learning of science content within such a curriculum.

#### **Prerequisite**

- None

**Textbook & Course Materials****Required Text**

- J. Clifford Jones, Concepts in Scientific Writing/ bookboon.com. – 2015 ISBN 978-87-403-1091-7
- David Cycleback. Limits of Science / bookboon.com, 2019 ISBN 978-87-403-3121-9
- Dr. Graham Basten, Introduction to Scientific Research Projects / bookboon.com. – 2015 ISBN 978-87-7681-674-2
- Thomas L. Isenhour, The Evolution of Modern Science ?/ bookboon.com. – 2013 ISBN 978-87-403-0480-0
- Martin Weiss, Writing Scientific Research Proposals: A Practical Guide / bookboon.com. – 2019 ISBN 978-87-403-2774-8

**Recommended Texts & Other Readings**

- Dasgupta, P., & David, P. A. (1994). TOWARD A NEW ECONOMICS OF SCIENCE. *Research Policy*, 23(5), 487-521.
- Geuna, A., & Muscio, A. (2009). The Governance of University Knowledge Transfer: A Critical Review of the Literature. *Minerva*, 47(1), 93-114. doi:10.1007/s11024-009-9118-2
- Link, A. N., Siegel, D. S., & Bozeman, B. (2007). An empirical analysis of the propensity of academics to engage in informal university technology transfer. *Industrial and Corporate Change*, 16(4), 641-655. doi:10.1093/icc/dtm020
- Schwarz, C. V., & White, B. Y. (2005). Metamodeling knowledge: Developing students' understanding of scientific modeling. *Cognition and Instruction*, 23(2), 165-205. doi:10.1207/s1532690xci2302\_1
- Siegel, D. S., Waldman, D. A., Atwater, L. E., & Link, A. N. (2004). Toward a model of the effective transfer of scientific knowledge from academicians to practitioners: qualitative evidence from the commercialization of university technologies. *Journal of Engineering and Technology Management*, 21(1-2), 115-142. doi:10.1016/j.jengtecman.2003.12.006

**Course Requirements**

- Internet connection
- Multimedia equipment

**Course Structure**

**Lectures and reading materials.** Participating in the lectures and reading the assigned papers are the most essential parts of the course. All enrolled students are therefore expected to participate in all lectures and read all assigned papers.

**Seminars.** The seminars are organized and conducted by the Instructor. The student performance at the seminars will be assessed based on three criteria: attendance, preparedness, and activity.

**Assignments.** For each part of the course there will be an individual assignment to write a short paper addressing a specific question. The assignments will be graded and commented by the Instructor with one paragraph of comments.

**Points for participation** in role-plays and discussions are awarded if the students use additional information from supplementary readings and make explicit reference to the author and to the book/article they have used.

**Mid-term exam** consists of a multiple choice test of 20 questions that deal with terms, ideas, and facts covered during the previous weeks and a short (not exceeding 250 words) written answer to one of two questions based on material covered within the previous weeks.

**Group presentation.** A PowerPoint (or Prezi, or OpenOffice) presentation of 20-25 slides prepared by a working group (depending on the number of students in the class but not more than four students in a group) on one of the issues covered in the course. The presentation will be followed by a Q and A session. Presenters are expected to demonstrate their use of theoretical and methodological tools discussed during the course for analysis of the subject of their presentation.

**Final Exam** consists of an open-ended test that requires short (1-3 sentences) responses to 100 questions based on the material covered within the course and a short academic essay (200 words) on one of three suggested topics.

## Part 2: Student Learning Outcomes

1. Provide a framework of knowledge, theory and understanding relative to Scientific knowledges transfer in the 21st century.
2. Embrace the thinking of Scientific knowledges transfer.
3. *Knowledge and Understanding*
  - *employ* theoretical and conceptual knowledge to *identify* and *analyze* Scientific knowledges transfer problems in global contexts, *select* the most appropriate form of Scientific knowledges transfer needed for the suggested type of activity and operation.
  - *identify and place into practice* information-based decision making approaches to scientific knowledges transfer problems with regards to operational grounding.
4. *Intellectual Skills:*
  - *gather, analyse, and evaluate* business data and information and *transform* empirical data into useful and actionable information using a set of strategic and descriptive tools,
  - *interpret and analyse* complex business issues from multiple perspectives and critically *review* academic literature and other relevant information sources, *design* an scientific knowledges transfer operating in the conditions of the diverse legal, socio-cultural and economic environment
5. *Practical Skills: Inter/Multicultural Competency*
  - *apply* proven theoretical and conceptual knowledge of scientific knowledges transfer challenges, including economic life-cycles.

*6. Transferable Skills: Multicultural Communication*

- *communicate* effectively in English in oral, written and electronic formats *using* communication and information technology for business applications, and is able *prepare* and *present* reports.

- *exercise* initiative and *take* personal responsibility for one's own work in terms of timeliness, professional behaviour, personal motivation and planning skills.

### Part 3: Topic Outline/Schedule

**Week 01:** Researches in the sphere of social sciences

**Week 02:** Researches in the sphere of social sciences

**Week 03:** Researches in the sphere of social sciences

**Week 04:** Researches in the sphere of social sciences

**Week 05:** Researches in the sphere of social sciences

**Week 06:** Research methodology: concept, content, functions

**Week 07:** Research methodology: concept, content, functions.

**Week 08:** Research methodology: concept, content, functions.

**Week 09:** Research methodology: concept, content, functions.

**Week 10:** Research methodology: concept, content, functions.

**Week 11:** Research methodology: concept, content, functions.

**Week 12:** Research programs in social and human sciences

**Week 13:** Research programs in social and human sciences

**Week 14:** Research programs in social and human sciences

**Week 15:** Research programs in social and human sciences

**Week 16:** Research programs in social and human sciences

### Part 4: Grading Policy

#### Graded Course Activities

ECTS Grade	Points	Russian grade
A	100-91 points	“excellent”: 100–80 points
B	90-81	
C	80-71	“good”: 79– 60 points
D	70-61	
F: failed	less than 60 points: failed	“satisfactory”: 59–40 points
		“unsatisfactorily”: failed, less than 40 points

## Part 5: Course Policies

### Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

### Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

### Complete Assignments

Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will affect the student's grade.

### Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

### Academic Dishonesty Policy

1. Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.
2. Course instructors have the initial responsibility for detecting and dealing with academic dishonesty. Instructors who believe that an act of academic dishonesty has occurred are obligated to discuss the matter with the student(s) involved. Instructors should possess reasonable evidence of academic dishonesty. However, if circumstances prevent consultation with student(s), instructors may take whatever action (subject to student appeal) they deem appropriate.
3. Instructors who are convinced by the evidence that a student is guilty of academic dishonesty shall assign an appropriate academic penalty. If the instructors believe that the academic dishonesty reflects on the student's academic performance or the academic integrity in a course, the student's grade should be adversely affected. Suggested guidelines for appropriate actions are: an oral reprimand in cases where there is reasonable doubt that the student knew his/her action constituted academic dishonesty; a failing grade on the particular paper, project or examination where the act of dishonesty was unpremeditated, or where there were significant mitigating circumstances; a failing grade in the course where the dishonesty was premeditated or planned. The instructors will file incident reports with the Deputy Director for Academic Affairs. These reports shall include

a description of the alleged incident of academic dishonesty, any relevant documentation, and any recommendations for action that he/she deems appropriate.